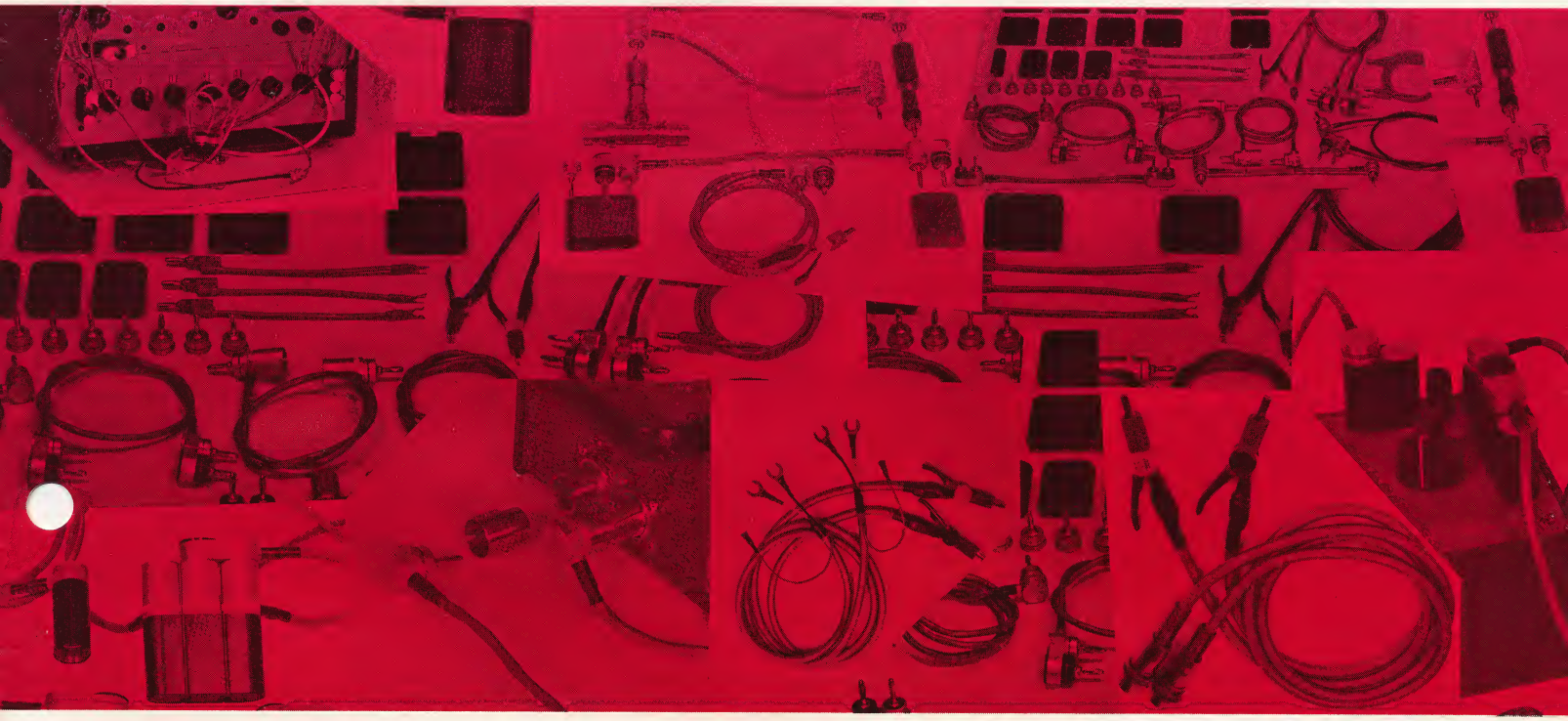
e|s|i®

Electro Scientific Industries

PORTLAND, OREGON • U. S. A.

ACCESSORIES

CLIPS, CABLES, CONNECTORS, CABINETS and etc



People make measurements; instruments help.

ESI has developed a line of accessories that help the instruments help the people that make the measurements.

ESI shielded cables and connectors completely enclose the electrical connections between instruments. This provides the shielding that turns a group of interconnected instruments into a unified measurement system.

KELVIN KLIP® four-terminal clips are used to make four-terminal connections to components. The four-terminal connections (two terminals to put current in and two to sample voltage out) can completely eliminate errors that are due to the resistance of test leads.

Contacting surfaces on ESI accessories are gold-plated. Gold is almost the only material that will maintain a corrosion-free surface to provide repeatable low resistance. It has negligible thermal voltage to copper.

The ESI cabinets are sturdy aluminum racks in the standard width (19 inches) to hold instruments that are used together. Filler panels, ventilated and blank, are available to cover unused rack space. Carrying handles on the cabinets make assembled systems easy to carry.

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CATALOG SHEET C-70
AUGUST 1965
REPLACES C-31

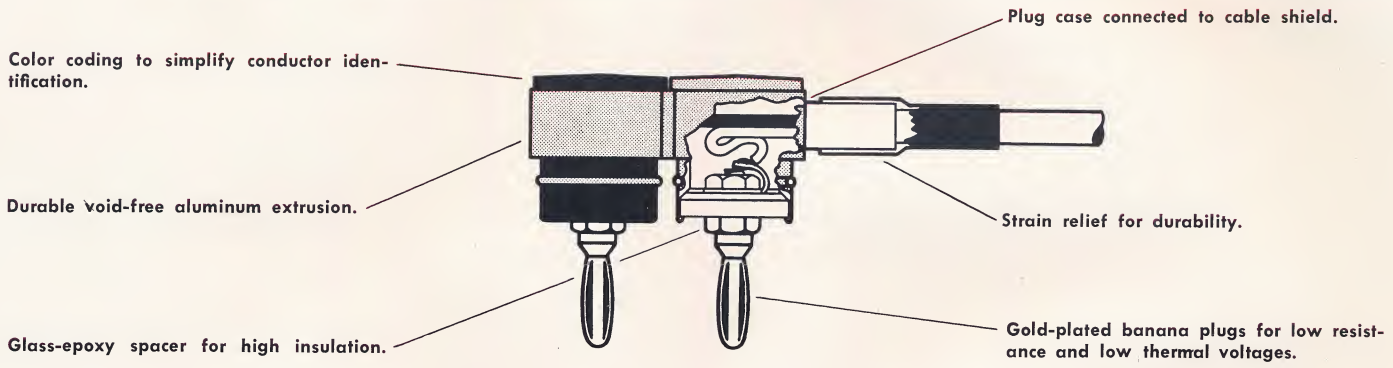
SHIELDED CABLES AND CONNECTORS

The ESI cables and connectors can completely shield the interconnections in a measurement system.

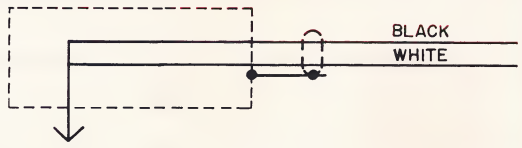
The shielding starts at the binding posts. Even the small distance between the instrument and the cable is shielded by extruded aluminum shield cases that completely surround the binding posts.

The shielding in the cable is attached to the shield case of the connector. The conductors are insulated by more than 10^{11} ohms from each other, from the cable shield and from the connector case. For the first time, a triaxial cable and connector assembly is provided for sensitive measurements where guarding to the point of connection is essential.

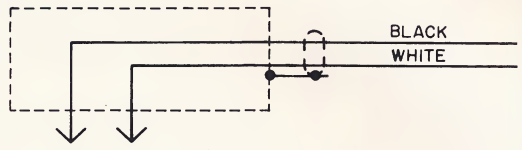
The double plugs and the 2- and 3-hole shield cases are designed to fit ¾-inch spaced binding posts and banana jacks. There are a number of adaptors that can be used to mate these connectors to those of other patterns, including common radio-frequency types.



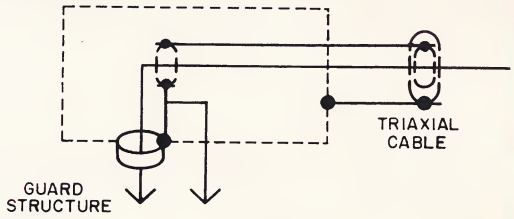
SINGLE PLUG



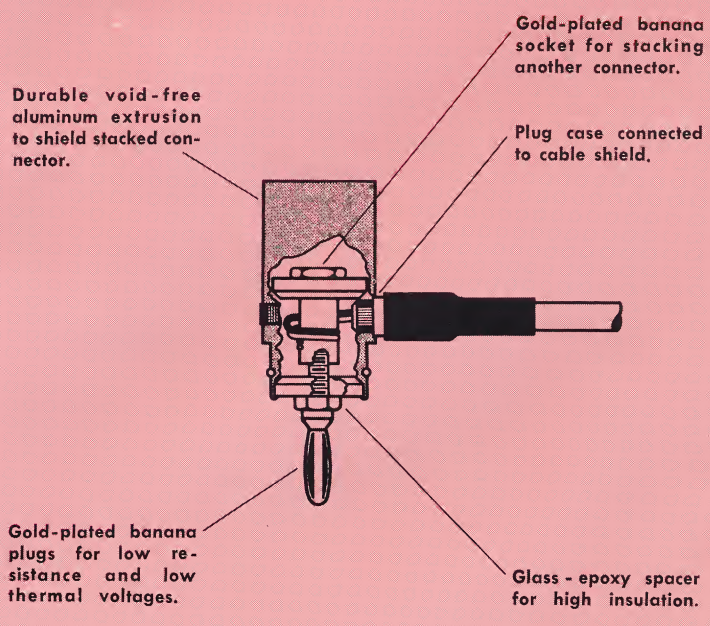
DOUBLE PLUG



GUARDED TRIAXIAL PLUG



2-WAY STACKING PLUGS



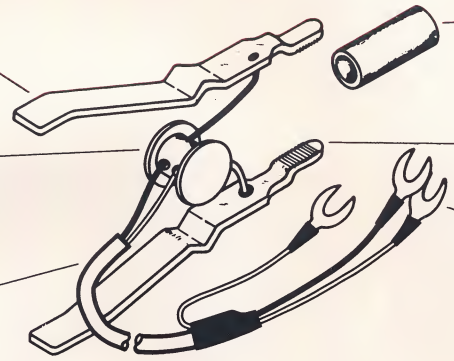
KELVIN KLIPS®

KELVIN KLIP® four-terminal connectors are clip connectors of exceptional mechanical and electrical quality. They are designed to make rapid, precise, two, three and four-terminal connections. Clip jaws are electrically insulated from each other so that each jaw can be used as a separate electrical contact. Sturdy, gold plated, beryllium copper jaws insure low contact resistance, low thermal emf to copper, high corrosion resistance and long, rugged service life. Polarity identification is provided by color-coded insulating hinge spools. The small serrated tips and insulated handles of the KELVIN KLIPS greatly simplify the connection to individual circuit elements. The contact force is chosen to insure positive gripping of a wide variety of terminals and leads without danger of damaging fragile components. Leads are shielded and insulated with polyethylene to minimize leakage. KELVIN KLIPS also provide strong, reliable, low resistance, long life, all-purpose test clips for two-terminal measurements. The shielded cables minimize electrostatic pickup and provide a guard connection for three-terminal applications.

Gold-plated, hardened beryllium copper alloy clips for ruggedness and long service life.

Color coded hinge spool with high insulation resistance, thermal stability and mechanical durability.

Shielded cable to minimize electrostatic pickup and polyethylene insulation to minimize leakage to the shield.

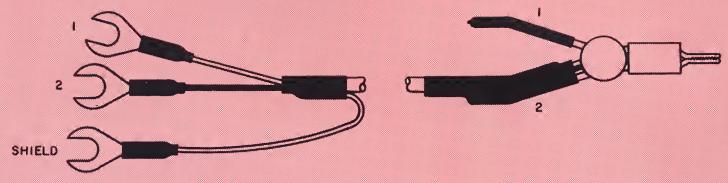


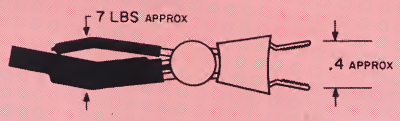
Elastic tubing for positive contact force and minimum jaw to jaw electrical leakage. Tubing is easily removed for clip maintenance.

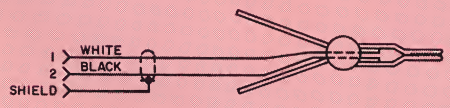
Parallel-serrated jaws for uniform positive grip.

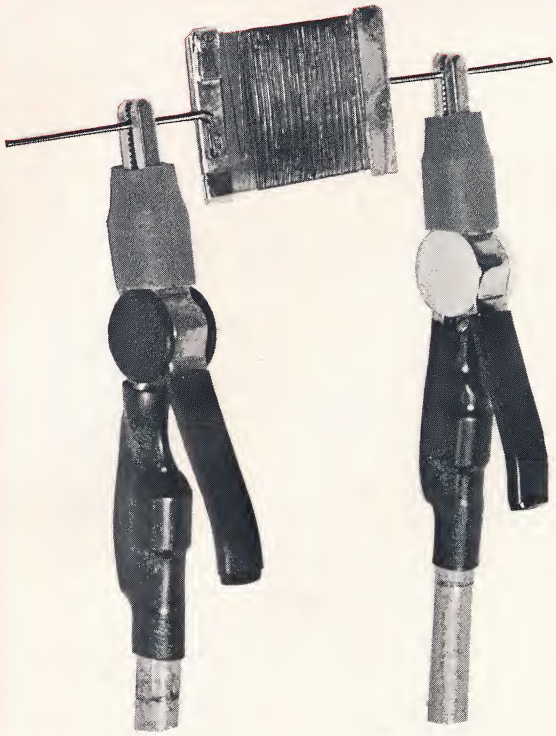
Gold-plated copper spade lugs for low-resistance, low thermal emf connections.

Vinyl sleeving for operator safety and to prevent shorts to nearby conductors.

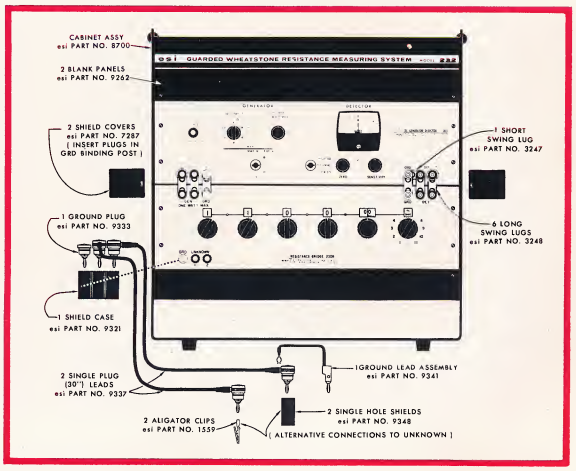








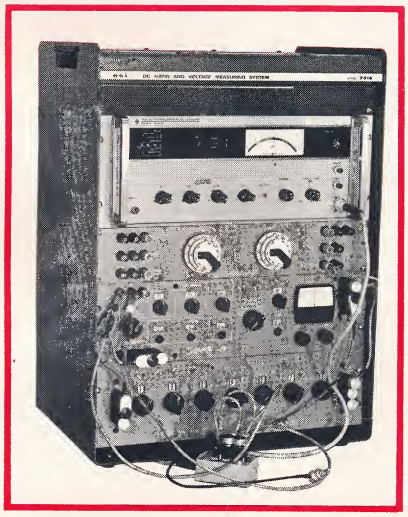
APPLICATIONS



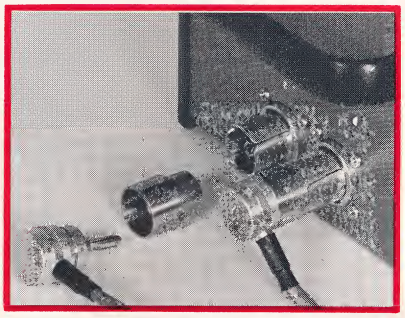
It happens too often; a man has the most up-to-date instruments for making high-sensitivity measurements, but his connector system throws the whole assembly out of whack.

Now ESI has put an end to this possibility with a fully shielded set of cables and connectors compatible with all commonly used binding posts. It's the first cable and connector system we know of that is designed to provide the complete dc and audio frequency shielding you need to make state-of-the-art measurements.

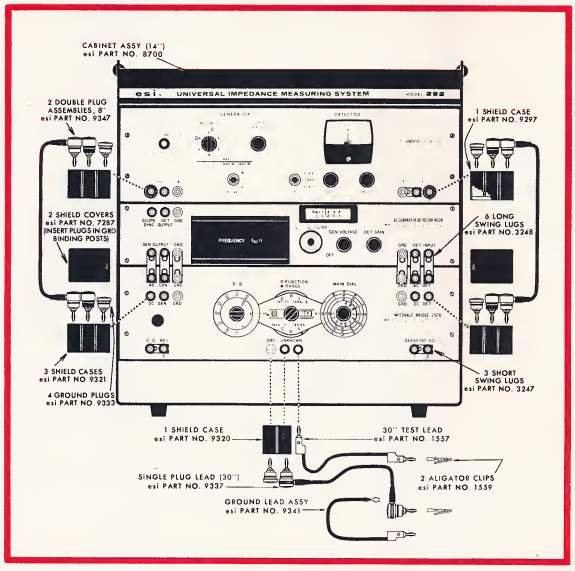
With this system, each individual binding post may be shielded from all adjacent posts. Through the use of adaptors, the system can be made compatible with rf-type shielded connectors. And it may also be used to make four-terminal connections for low impedance measurements.

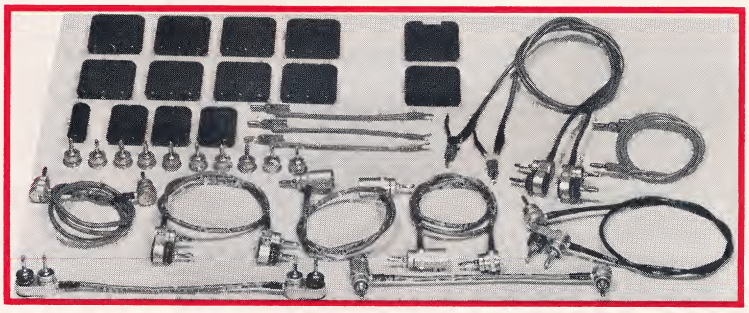


Naturally enough, ESI accessories are specified for use on ESI systems. To provide very low resistance interconnections between adjacent instruments, gold-plated swing lugs are used, and they are shielded with ESI-designed plug-in shield covers. For maximum versatility in connecting systems to other equipment, to other instruments, or to the whatsit that's being measured, the shielded cables and connectors are the thing to use.



Speaking of versatility, shielded cables and connectors are used to make the Model 731A DC Ratio and Voltage Measuring System a highly versatile device. It can calibrate a power supply and monitor the output compared to a standard cell, it can divide voltages, supply voltages lower than standard cell potential, yet compare them to a standard cell, and it can be used as a voltage divider calibrator. All these different uses require different instrument connections. The cable set (below) is furnished as part of the instrument in order to make the connections.





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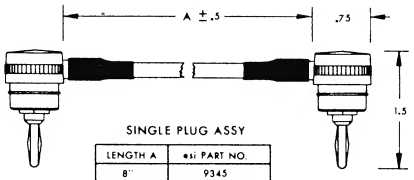
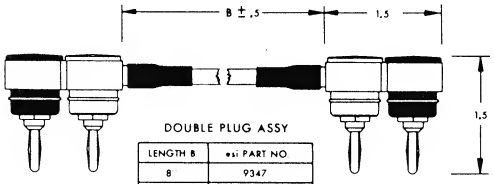
INTERCONNECTING CABLES, SHIELDED



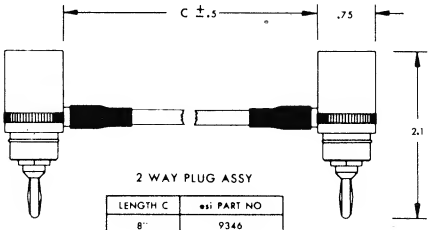
SINGLE PLUG ASSY

LENGTH A	esi PART NO.
8"	9345
20"	9282
30"	9337



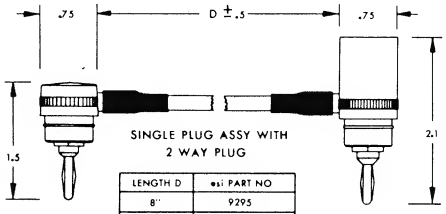
DOUBLE PLUG ASSY

LENGTH B	esi PART NO.
8"	9347
20"	9281
30"	9335



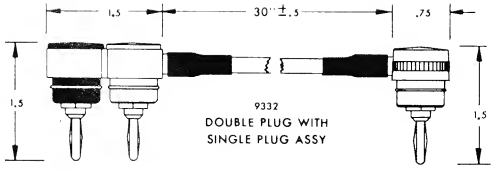
2 WAY PLUG ASSY

LENGTH C	esi PART NO.
8"	9346
20"	9284
30"	9339



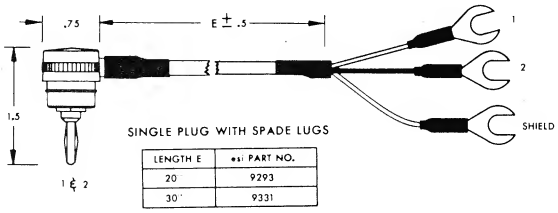
SINGLE PLUG ASSY WITH 2 WAY PLUG

LENGTH D	esi PART NO.
8"	9295
20"	9292
30"	9294



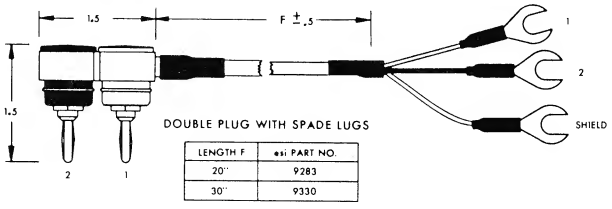
9332
DOUBLE PLUG WITH SINGLE PLUG ASSY

9289
DOUBLE PLUG WITH SINGLE PLUG ASSY-GUARDED
(SAME DIMENSIONS AS 9332)



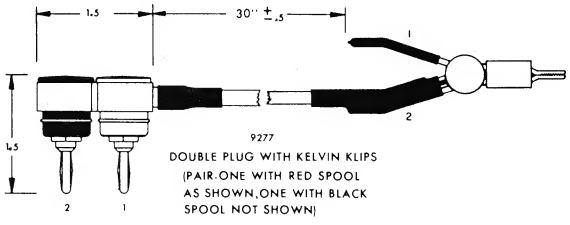
SINGLE PLUG WITH SPADE LUGS

LENGTH E	esi PART NO.
20"	9293
30"	9331



DOUBLE PLUG WITH SPADE LUGS

LENGTH F	esi PART NO.
20"	9283
30"	9330



9277
DOUBLE PLUG WITH KELVIN KLIPS
(PAIR-ONE WITH RED SPOOL AS SHOWN, ONE WITH BLACK SPOOL NOT SHOWN)

SINGLE AND DOUBLE PLUG CABLES, 2-WAY STACKING PLUGS, SPECIAL GUARDED AND FOUR-TERMINAL CONNECTORS

Cable is two-conductor foil-shielded (except Part No. 9289 which has triaxial cable). Double plug assemblies have color-coded (black and white) connections. Single plugs connect to both wires, which allows two separate connections to plug with Part Nos. 9332, 9293 and 9331. All shields connect to anodized aluminum plug housings. All banana plugs, spade lugs and KELVIN KLIPS® four-terminal clips, are gold plated. Lead resistance approximately 10 milliohms per foot, insulation resistance greater than 10^{11} ohms, breakdown voltage tested to 1500 volts rms. All cables rated at 3 amperes.

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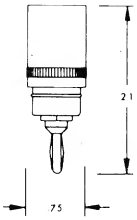
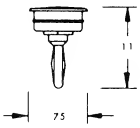
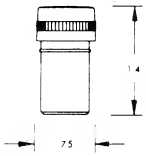
ACCESSORIES FOR SHIELDED CABLES AND CONNECTORS



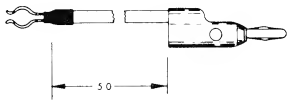
FEED-THROUGH SPACER PLUG esi PART NO. 9338
matches height of two-way plugs for stacking.



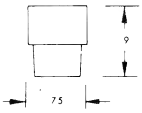
GROUND PLUG esi PART NO. 9333
connects shield case to ground binding post.



GROUND LOCK esi PART NO. 9334
connects shield case to ground binding post and screws firmly in place.



GROUND LEAD esi PART NO. 9341
clips to shielded plug housing and furnishes ground path for shield.



ADAPTER PLUG esi PART NO. 9318
adapts ESI shielded connectors to GR 874 type connectors.

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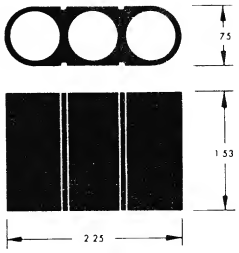
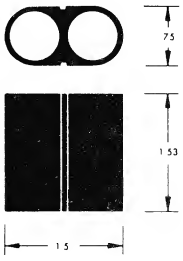
SHIELD CASES

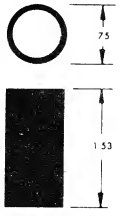


THREE HOLE SHIELD CASE
esi PART NO. 9321

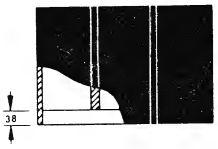
ANODIZED ALUMINUM EXTRUSIONS completely surround binding posts and connect to shielded plugs in order to shield all interconnections of a system. Inside relief in parts 9296 and 9297 allows binding posts to be connected with swing lugs.



TWO HOLE SHIELD CASE
esi PART NO. 9320

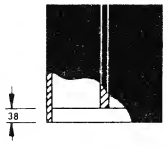


SINGLE HOLE SHIELD CASE
esi PART NO. 9348



SAME DIMENSIONS AS esi PART NO 9321

THREE HOLE SHIELD CASE WITH RELIEF esi PART NO. 9297



SAME DIMENSIONS AS esi PART NO 9320

TWO HOLE SHIELD CASE WITH RELIEF esi PART NO. 9296

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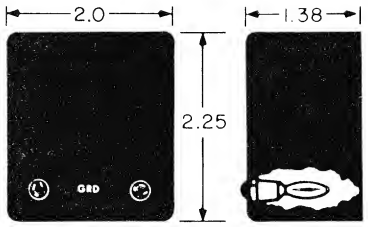
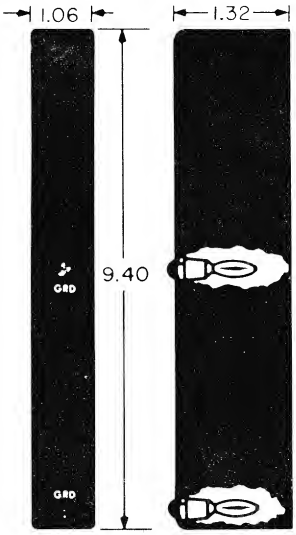
SHIELD COVERS



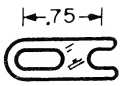
esi PART NO. 7287



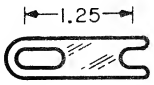
esi PART NO. 7289

ESI-DESIGNED PLUG-IN SHIELD COVERS are used to shield the connections between instruments. They are held in place by banana plugs inside that also connect the shield covers to ground for effective shielding. Part No. 7287 covers three pairs of connected binding posts; it is widely used on ESI Systems to shield adjacent terminals. Part No. 7289 is used to cover wired connections between adjacent instruments; it is used on ESI Model 242A System.

SWING LUGS



esi PART NO. 3247



esi PART NO. 3248

GOLD-PLATED
COPPER SWING LUG

(SAME DIMENSIONS AS
esi PART NO. 3248)

esi PART NO. 3301

GOLD-PLATED BRASS LUGS provide low resistance, low thermal voltage connection between binding posts. Part 3248 connects between adjacent instruments, part 3247 connects 0.75 inch-spaced binding posts. Also available: Part 3301, similar to part 3248 except copper with 50 micro-inch gold plate for the ultimate in low thermal voltage.

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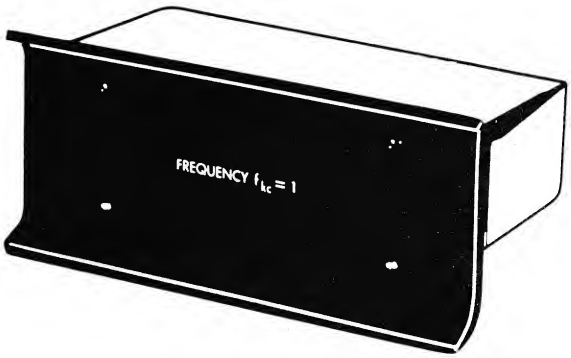
NETWORKS

FREQUENCY-DETERMINING NETWORKS FOR ESI MODEL 860

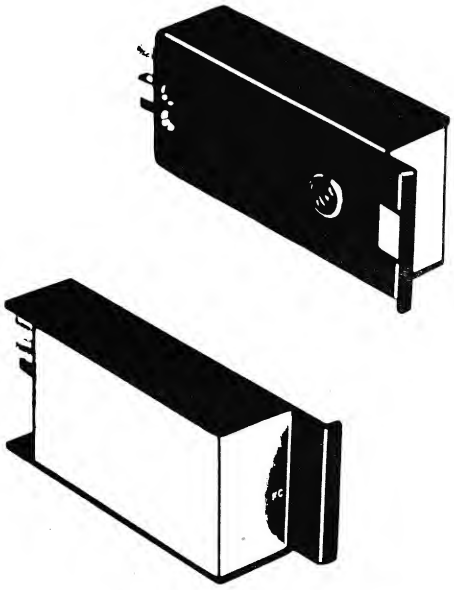
Combined generator and detector frequency-determining network.



FREQ*	esi PART NO.
60	3452
100	3447
120	3451
400	3449
1kc	3446
10kc	3448

FREQUENCY-DETERMINING NETWORKS FOR ESI MODELS 250DA AND 855A1

Matched frequency networks for amplifier and oscillator.



FREQ*	AMP esi PART NO.	OSC esi PART NO.
60	4411	4434
100	4401	4421
120	4410	4433
400	4402	4422
1kc	4400	4420
10kc	4403	4423

*Other frequencies available on special order.

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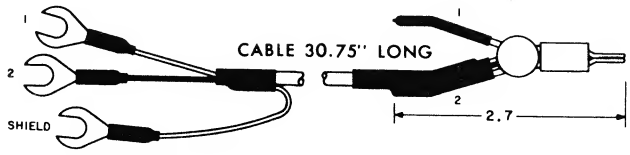
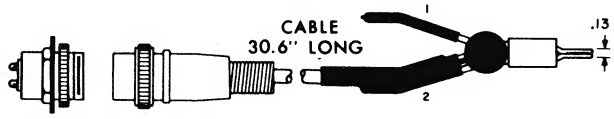
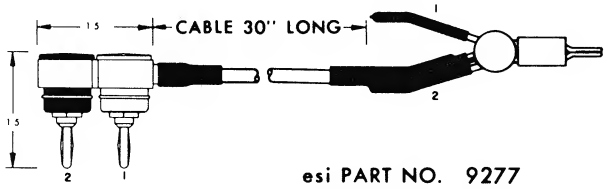
KELVIN KLIPS® FOUR-TERMINAL CLIPS



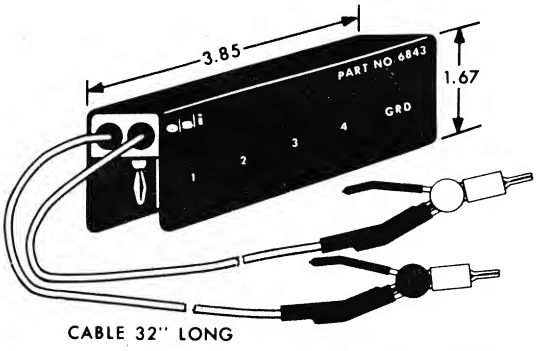
model KK 110 esi PART NO. 8306



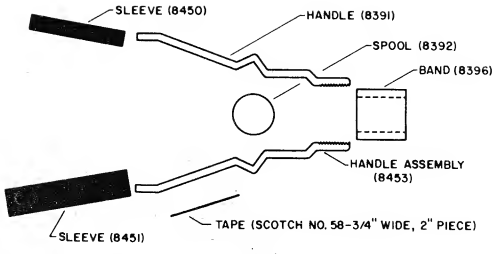
esi PART NO. 8378 esi PART NO. 8309



esi PART NO. 9277



esi PART NO. 6843



model KK 100 esi PART NO. 8308

One pair of KELVIN KLIPS® in kit form with assembly instructions.

KELVIN KLIPS® Four-terminal clips to make rapid, precise four-terminal measurements. Each set of KELVIN KLIP test leads has matched lead resistance. Each set has one red spool and one black spool for ease of use. Part No. 8309 is designed for use with ESI Model 240 Kelvin Bridge and Model 874 Phase Compensator. Part No. 8378 is a socket to fit the plug on Part No. 8309. Part No. 6843 is designed for use with ESI Model 300 PVB® Potentiometric Voltmeter Bridge. Part No. 9277 provides banana plug connection to standard 0.75 inch spaced binding posts. Part No. 8306 has gold-plated spade lugs for low-thermal-voltage contact.

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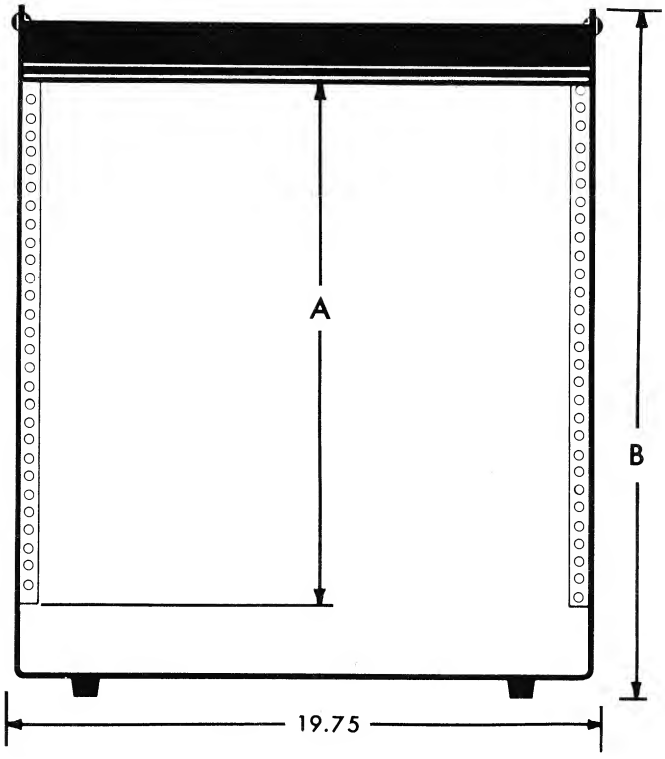
SYSTEM CABINETS

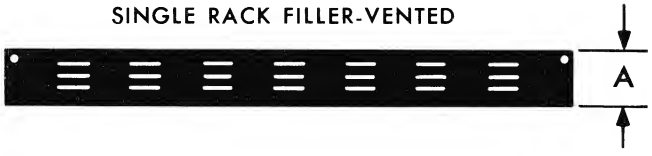


STURDY ALUMINUM RACKS in standard 19-inch width to hold instruments used together. Rails drilled for all common instrument sizes, tapped for No. 10-32 scews. Removable backs have holes for ac line cord and other cables. Carrying handles on top are integral part of rack. Racks are 14 inches deep and accomodate instruments as large as 11.5 inches deep.

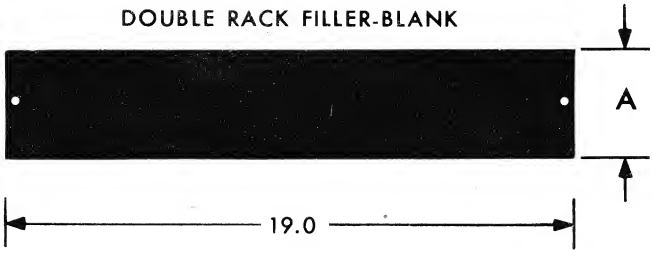
NO. OF RACK UNITS HIGH	INSIDE HEIGHT A (INCHES)	OUTSIDE HEIGHT B (INCHES)	esi PART NO.
8	14.00	19.7	8700
10	17.50	23.2	8727
12	21.00	26.7	8701
13	22.75	28.5	8735

CABINET FILLER PANELS

SINGLE RACK FILLER-VENTED



DOUBLE RACK FILLER-BLANK



GRAY ENAMELED BLANK AND VENTED PANELS to cover unused rack space.

HEIGHT A (INCHES)	esi PART NO.	
	BLANK	VENTED
1.75	9262	9260
3.50	9261	9263

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ORDERING INFORMATION

When ordering ESI accessories, always include the following information:

1. Quantity desired.
2. ESI Model or part number.
3. Description.
4. Reference information, if any.
5. Desired delivery.
6. Shipping and billing address.

DELIVERY

Shelf stock is maintained for most items. 30 day delivery is usual for catalog items not in stock. For many non-standard items, delivery can be made in approximately 60 days. These units must be scheduled on receipt of your order, so specific delivery quotation is required. Improved delivery can be had in many cases by ordering standard catalog items not requiring engineering.

DAMAGE OR BREAKAGE

A report should be filed at once to the agent of the transportation company and a claim made to them. Do not return equipment to ESI before making this report.

MINIMUM BILLING:

$5.00.

REPAIRS

Repair estimates are not supplied to the customer unless the repair is expected to exceed 15% of the original cost. In these cases, we will proceed with the repair work only after approval by the customer.

Our "no estimate" procedure helps us give prompt service. If your equipment cannot be repaired and returned to you in 10 working days, you will be notified.

RETURNING GOODS

Always notify the factory before returning any instrument or system. We will give shipping instructions.

The following are registered trademarks of Electro Scientific Industries, Inc.:

ESI® Electro Scientific Industries, Inc.
ESIAC® Algebraic Computer
ESIPOT® Potentiometer
DEKABOX® Decade Resistors and Capacitors
DEKABRIDGE® Bridge Circuit
DEKADIAL® Decade Dials
DEKAMATIC® Automatic Unit
DEKAPOT® Decade Potentiometers
DEKASTAT® Decade Rheostat
DEKAPACITOR® Decade Capacitor
DEKAVIDER® Decade Voltage Divider
KELVIN KLIPS® Four-terminal Clips
KELVIN KLAMPS® Four-terminal Clamps
PORTAMETRIC® Portable Measuring Instrument
PVB® Potentiometric Voltmeter Bridge

Application for registration has been filed for the following:

DEKATRAN Decade Transformer

WARRANTY

ELECTRO SCIENTIFIC INDUSTRIES, INC. WARRANTS ITS PRODUCTS TO BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP.

FOR A PERIOD OF TWO YEARS FROM THE DATE OF SHIPMENT TO THE ORIGINAL PURCHASER, WE WILL SERVICE OR, AT OUR OPTION, REPLACE ANY DEVICE WHICH FAILS IN NORMAL USE TO MEET ITS PUBLISHED SPECIFICATIONS.

BATTERIES AND TUBES WHICH HAVE GIVEN NORMAL SERVICE ARE EXCEPTED.

Electro Scientific Industries, Inc., reserves the right to make changes in design at any time without incurring obligation to modify units previously purchased.

DISTRICT REPRESENTATIVES

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Ed Swenson, Instruments Specialist
Stan Gressel, Components Specialist
Larry Skidmore, Service and Repair

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Northeast:
William Lyon, Dist. Mgr.
P.O. Box 183
Cochituate, Mass. 617—235-3427

ACCESSORY PRICE LIST

esi PART NUMBER	PRICE	SHIPPING WEIGHT LBS
INTERCONNECTING CABLES		
9277 (per pair)	$27.50	1
9281	8.00	1
9282	5.50	1
9283	6.25	1
9284	6.50	1
9289	6.00	1
9292	6.00	1
9293	5.00	1
9294	6.50	1
9295	5.40	1
9330	6.75	1
9331	5.50	1
9332	7.25	1
9335	8.50	1
9337	6.00	1
9339	7.00	1
9345	4.90	1
9346	5.90	1
9347	7.40	1
CABLE AND CONNECTOR ACCESSORIES		
9318	0.50	1
9333	1.00	1
9334	1.00	1
9338	1.75	1
9341	1.00	1
SHIELD CASES		
9296	1.25	1
9297	1.50	1
9320	1.00	1
9321	1.25	1
9348	0.75	1
SHIELD COVERS		
7287	4.50	1
7289	12.00	1
SWING LUGS		
3247	6 for 1.00	1
3248	6 for 1.00	1
3301	6 for 1.00	1

esi PART NUMBER	PRICE	SHIPPING WEIGHT LBS
KELVIN KLIPS®		
6843	$27.50	1
8306 model KK 110 (per pair)	25.00	1
8378	1.35	1
8308 model KK 100 (per set)	10.00	1
8309 (per pair)	27.50	1
9277 (per pair)	27.50	1
SYSTEM CABINETS		
8700	100.00	49
8701	100.00	52
8727	100.00	55
8735	100.00	59
RACK FILLERS		
9260	7.75	1
9261	7.75	1
9262	7.50	1
9263	8.50	1
NETWORKS		
FREQUENCY, Hz		
3446 1k	30.00	3
3447 100	40.00	3
3448 10k	30.00	3
3449 400	40.00	3
3451 120	40.00	3
3452 60	40.00	3
4400 and 4420 1k (per pair)	30.00	3
4401 and 4421 100 (per pair)	40.00	3
4402 and 4422 400 (per pair)	40.00	3
4403 and 4423 10k (per pair)	30.00	3
4410 and 4433 120 (per pair)	40.00	3
4411 and 4434 60 (per pair)	40.00	3
OTHER FREQUENCIES	60.00	3

MINIMUM BILLING: $5.00

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